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Templexity

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November 2014

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Foreword

Does time itself include the potential to surprise us? As soon as we begin to suspect so, a reflective undertaking that is properly – and even ultimately – philosophical has begun. This journey has ‘always already’ started, as the transcendental criticism insists. The process has only to learn what it is. That, however, takes time.

We can reach the end in a single moment: *Cities are time machines*. Some will work better than others, and the workings of each have been singular. (If grammatical tense and quantity are scrambled in the process, it is not especially difficult to see why.)

Templexity, unlike ‘time-travel’, is not limited to its narrativization, but is that which time-travel narrative – or drama – is ultimately about. To salvage this proposition from casual dogmatism, it is necessary to admit, hypothetically, that time-travel might be ‘about’ *nothing*. This is even probable, if thoughtfully understood. Templexity is therefore an emergent question, at least initially, and for ‘us’. If it is assumed here that the reader has been waylaid upon return from a theatrical production themed overtly – and to a still greater degree tacitly – by time-travel in Shanghai, the sample audience envisaged drafts a ‘we’ that we can start with. To have seen *Looper* is unnecessary, if you can at least pretend to have done so. Nothing more is required than acquiescence to the (almost) entirely empty proposition: *It has begun* (and been seen to have begun).

From the beginning, it is evident that *Looper* cannot bear even the slightest theoretical stress, so its prominence is liable to disconcert. There is no refuge to be found, however, in its dismissal from consideration as a mere *pretext*, unless – once again – this term is ascribed far greater cognitive density than is reasonable to expect. The movie is first of all a complex cultural *fact*, and then a historic metaphysical *symptom*, and finally a *machine part*. Its philosophical

credibility plays only the most insignificant role in any of this. *What is added to our understanding of the world, once we are told it is such that Looper has been produced within it?* – That is the approximate query sustaining its presence here.

The adhesion to Shanghai as a companion on the path to templexity, and even as an investigative horizon, while more inherently dignified than the attachment to a profoundly-flawed Hollywood pop-entertainment product, is also vulnerable to harsh interrogation. Does even the generic city – let alone the specific city – make any genuinely substantial contribution to a discussion of the abstract fabric of the world? Is the role of the city – as already in the movie – not in fact merely *decorative?* Such objections have undeniable force insofar as they draw attention to the radical under-development of the urban-thematic perspective, but in this regard they should be considered a stimulus rather than a termination. If nothing obstructs complete relapse into generic urbanism here, excepting vague guidelines for historical study, and disconnected propositions of extreme metaphysical pretension, a sympathetic evaluation would begin elsewhere: with the degree to which this – as yet merely suggestive project – converges upon a (comparably germinal) re-initiation of the question of time. It is through a re-integrated exploratory horizon, determined by exact coincidence between the problems of templexity and urban singularity, that advances, retardations, and false leads are measured by an appropriate criterion. To invoke the city as the emergent *subject* of the question of time is not merely hypothetical but – when approached at the scale appropriate to the real cognitive agency involved – fully experimental. The tacit (and vulgarized) question: *What is Shanghai coming to think about this?*

While discussing dramatic composition in the *Poetics*, Aristotle tells us: “A whole is that which has a beginning, a middle, and an end. A beginning is that which does not itself follow anything by causal necessity, but after which something naturally is or comes to be. An end, on the contrary, is that which itself naturally follows some other

thing, either by necessity, or as a rule, but has nothing following it. A middle is that which follows something as some other thing follows it. A well-constructed plot, therefore, must neither begin nor end at haphazard, but conform to these principles." The judgment brought to bear upon time-travel drama, while inexplicit, is nevertheless conspicuously damning. Crucially, it provides a clue of inestimable value to the structure of dramatization.

When templexity, time-anomaly, is staged as a drama – which is to say, more controversially, aestheticized, produced as a public presentation, or even manifested (to us) in general – it undergoes a predictable, systematic transformation. The phenomenon ('time-travel') is a reconstruction, pre-selected for consistency with the possibility of *plot*, which is, in turn, a proxy for *intelligible agency*. Anything shown through actors has been formatted for them. Even if we decide, eventually, that the ultimate shape of Topological Meta-History has been adequately captured by Bruce Willis' crooked smile, it was at least prudent to explore the alternative case.

Templexity is indistinguishable from unbounded real recursion, so it cannot be lucidly anticipated independently of a historical completion – or 'closure' (apprehended in the multitudinous sense noted in the text to follow). There could only have been a beginning – a prolegomenon to the rigorous formulation of templexity as a question – and the topic itself retracts this, even before its proposal. The real process is not the resolution of the problem at the level it appears – dramatically – to have been initially posed, but its re-absorption into the alien cognitive matrix which inherits it. 'Templexity' – as a sign – marks the suspicion that, if we are *waiting for this to happen,* we still understand nothing.

For some among us, a final irritation is introduced by the systematic decision in favor of logical (rather than conventional) punctuation. Inverted commas are modeled approximately upon mathematical parentheses, to enclose isolable statements. Semicolons are

generally disparaged as pseudo-pneumatic fripperies. Several additional maddening tics can no doubt be rapidly itemized.

Let me explain entropy to you. It isn't difficult. It's the gradient of temporal irreversibility. Imagine a video of someone dropping an egg. It falls to the floor, and smashes. Now dismantle the video into stills. Can you re-assemble the time-line? Of course you can. It's only necessary to follow the divergent wave. Eggs don't spontaneously un-smash. If you saw that, you'd know the snaps had been arranged backwardly. The process of smashing – passing from an improbable to a more probable state – marks out the arrow of time. …"

"But teacher …"

"What is it?"

"How come there are eggs?"

§1.0 “This time travel crap, just fries your brain like an egg,” says the elder Joe (Bruce Willis) in Rian Johnson’s *Looper* (2012). By tangling the story-line, it auto-dismantles a process of dramatic production. Narrative ruin is the time-travel effect. When it works, it eventually raises the suspicion that something else has happened instead.

§1.1 Shanghai reaches back across three decades to provide Johnson with his city of the future. It’s been doing that a lot in recent years. Before science fiction had a name, it had already been baked into Shanghai’s Art Deco high-modernism. The re-opened city of the early 1990s, once again, and without hesitation, made overtly futuristic architecture its sign. In a process of double-dating, yet to be patiently explored, 1994, 1999, 2008, and 2014 set re-envisioned futures on the vertical outer-edge of the skyline.

§1.2 A ‘city of the future’ loops forwards, and back, through time anomaly. Yet time-travel appears – ‘initially’ – to introduce more specific complications. In China, these have been explicitly ideo-political. In 2011, Chinese broadcast authorities denounced time-travel fictions, apparently concerned by mass-defections of the citizenry into a pre-republican past, under the influence of narratives that “casually make up myths, have monstrous and weird plots, use absurd tactics, and even promote feudalism, superstition, fatalism and reincarnation.” As English media coverage illustrates, it is all too easy for Westerners to revert to glib comedy when interpreting this official recognition of an emerging time-politics, even as the epoch of Occidental superciliousness closes dramatically.

§1.3 “You should go to China,” Joe is told by his criminal overseer, Abe. “I’m going to France,” Joe insists stubbornly. Abe responds with what – for us – is the most critical line in the movie: “I’m from the future. You should go to China.” With these words, *Looper* makes Sino-Futurism its topic. The hyper-modern *China Event* overspills the existing order of time.

§1.4 Joe has been learning French. Perhaps it was too troublesome to edit that out, when the script was revised. (We're still talking business, and not time-travel 'yet'.) Hollywood discovered that doing the future in Europe has become impractical. Paris had to go, despite the language lessons, recorded – indelibly – in the first version of the film-script. Historical and commercial realities were constructing a palimpsest, over-written by Sino-Futurism. Production economics and Chinese distribution opportunities fed-back into the story-line. The Shanghai cityscape and Xu ('Summer') Qing were grafted in.

§1.5 Passage from the business strategy of *Looper*'s Chinese co-producer, DMG Entertainment, to the cosmic disordering of time, involves a traverse through thickets of revisionism. Rough-draft versions of these multiple, intricately-entangled revisions are immediately evident, in re-conceived production and distribution plans, re-written scripts, ideological reconstruction, and a re-worked world order. Running through all of these rectifications is the Sino-Futurist time-loop, which *Looper* dramatizes for popular media consumption. For so long as revisionism remains our theme, we are still in the dramatic frame.

§1.6 Terminological rectifications are typically a fleeting indulgence. Every word, or common term, is a packet of fate, resistant to recommended usages. It is nevertheless necessary to note that 'time-travel' is in critical respects an unfortunate term. It suggests the transportation of a body through time, which is a uniquely misleading image of time-anomaly. To speak in this way, as it is convenient to do, requires systematic irony if it is not to lead – by inevitability – to grave conceptual error. 'Time-travel' can only be rigorously pursued as *the dramatization of something else*. This is a qualification, and a path.

§1.7 Panning back from the movie to its production process, we see Paris lose the future. It could not easily be any simpler, or more graphic. Relic French lessons tell a story that has ceased to be part

of the story. It was unaffordable. There is, of course, much that could be said, but we're finished with it. Like Joe, we shall have no occasion to go there. It is our shelved 'elsewhere'.

§1.8 America, too, has lost the future, but in a very different way. It has become the theater of entropy, still central to a cinematic drama in which the accumulation of disorder holds the stage. As expected in an environment of degraded information, we know little. In consistency with the great Anglophone tradition of dark futuristic fiction, critically relayed by William Gibson's *Neuromancer,* it is not even clear whether America still exists as an integrated polity. We find ourselves, in any case, in a grim, deteriorated, crime-wracked Kansas City, where history has spectacularly gone wrong. "I'm from the future, you should stay in America," – no one in *Looper* says that.

§1.9 *Looper*'s Kansas City is a body dump. The movie's only significant macro-political agency is a criminal syndicate that uses on-set Kansas City time (2044) as a secret graveyard. Awkward corpses are retro-deposited there, to disappear. That is how entropy dissipation is configured as a pop-culture plot device. The present we have yet to reach will be a waste dump for its future. A structural production of meaninglessness can be discharged there. Derelicts shamble through it, perhaps pausing to squint uncertainly into the camera, drugged on senseless ruin. Threaten them with a weapon and they move on, heading nowhere. The only point left here is to die.

§2.0 There are innumerable ways in which the core *Looper* scenario is absurd. To wring sense from it requires some care, and a stubborn attention to drama. Above all, it is necessary to focus upon the principal protagonist of the time-travel narrative – its archetypal hero – *the double*. Insofar as the sheer prominence of this topic is concerned, *Looper* cannot be faulted. Its twin-lead promotional presence was built entirely around it. All time-travel – or Wellsian liberation of a body within the time-line (we will come to that) – is a process of duplication. When staged by an agent, within the span of

an individual life, this doubling is dramatized – most starkly, by a potential self-encounter. Two segments of the same life-time are folded into anomalous proximity. Joe-1 (Bruce Willis) and Joe-2 (Joseph Gordon-Levitt) converse about the strangeness of time-travel, which is the framing oddity of the conversation occurring at all. Twisted time is staged as a semi-broken identity.

§2.1 The acme of time-travel drama is a short loop back. This trip is bounded by the wave-length of the human life-span, within which the anomalous folding, and consequent doubling, is encapsulated. One meets itself, and is no longer one, at least straightforwardly. *I is an other*. This meeting, which modernity has so long awaited, is at once uncanny, dramatic, and absurd.

§2.2 As previously intimated, working backwards from the absurdity is the laziest path, pre-arranged by rules of convenience, and packaged for facile consumption. The dramatic imperative is for time-travel to be shown, which requires that it be radically delimited. It is from this delimitation, or depotentiation, that a dazzling absurdity emerges.

§2.3 *Looper* suffices entirely as an illustration. In outlining the movie's absurdity, we can speak quite rigorously of a *dramatic stupidity*. The principal fictional agents truncate their potential achievements, to a comically extreme degree. While it might be hyperbolic to describe a functioning time-travel procedure as a source of infinite virtual power, such a description is plausibly suggestive. Crude – or dramatically stark – time-travel capability allows for an open-ended revision of the past, and consequently of everything that follows from it. Additionally, and (at least superficially) *infinitely*, this capability is reiterable. Outcomes arising from 'prior' time revisions can be fed-back through loops, generating 'new' outcomes, which are themselves resources for further interventions. It is difficult to set logically-consistent limits on the potential of such recursive time-modification. Absolute power is exhibited as a program. Yet *Looper*'s time-gangsters, apparently uninhibited by

cosmic constraints or moral qualms, find *almost nothing to do*. Their negative opportunism is so extreme it blinks out, self-exempted from the bounds of dramatic perception. Whatever their business is supposed to be, it involves a steady trickle of killings, and that is all we learn. Godlike capability has shrunken down to a miserable little racket. Of course, it's stupid.

§2.4 Once seen, it's immediately time to move on. Dramatic stupidity is far less a mistake than a deliberate decision. Its significant frame is not logically-consistent time-disturbance, or coherent non-linear narrative, but *apparent* consistency, and coherence *effect*. Even in the age of cinema, the dominant imperatives are theatrical. In other words – cast into a philosophical register – they are *weakly transcendental*. When questioned about *Looper* 'plot-holes', director Rian Johnson is frank, even cynical about them. Doesn't the movie's dramatically-satisfying ending unravel its chrono-plastic consistency? "If it's important to you to really justify that beyond 'It makes sense in a story type way,' you'll have to get into multiple time lines existing in never-ending loops of logic." Which is to say, *get lost* (in the off-stage time-spaghetti). It isn't something that Johnson needed to work. After all, he isn't a time-gangster, but an entertainment orchestrator. The cinematic order imposes its own (sovereign) rules on the phenomenon.

§2.5 Brad Brevet puts it a little differently: "Any movie involving time travel is going to have problems, without fail. … Why is this? Because, shocker, **time travel doesn't exist**. Therefore to make it a reality in a feature film is an impossibility without problem spots." To avoid tripping over Brevet's dogmatic metaphysics, it is sufficient to re-iterate – and parenthetically extend – the terms of our working usage: *time-travel is the dramatization of something else (which might not exist).* It is essentially simulation. Cinema has an entirely plausible claim to it. The story comes first. Once upon a time anomaly.

§2.6 For ease of comprehension we can follow the plot (that's what dramatization is for). There's only one time-traveling agency – the Rainmaker's criminal syndicate – and perhaps only one time machine. (If there are more, it makes no difference.) Further restrictions are implicit. The machine only works backwards, and – as far as we are aware – it crosses exactly 30 years (the same 30 years). It is less a general time-travel capability than a specific wormhole, connecting two definite dates, whose arrival and departure times are differentiated from themselves by no greater distance than is required to avoid congestion. It does not become clogged. Once again, we immediately see, dramatic imperatives reign. The machine is shown as a single gate. It cannot (apparently) be duplicated, and fed through itself. It does not proliferate. It is abstract stage machinery, supporting a dramatically delimited narrative function. *Looper*'s time machine is the objectification of a twisted script, and nothing significantly more.

§2.7 The movie has one conceit that merits particular attention, since it is accompanied by an instance of unique terminological assertion. 'Closure' – a word interlocked tightly with the discourse(s) of temporal nonlinearity – receives an innovative sense in *Looper*. As might be expected, it is dramatically stretched. While retaining its geometrical and / or topological denotation as a complete twist (of time), it is invested with a supplementary specificity as the completion of a life, through auto-assassination, of the double. The three decades of a looper's professional career is consummated when he is sent back to die at his own hand. This special act of murder-suicide 'closes the loop' *that the assassin is*. Death is personally and precociously settled. From this formula, which is presented as a standard arrangement, or regular procedure, the plot of *Looper* departs into exception.

§3.0 To reduce the potential of time-travel technology to economic calculations is indubitably simplifying, but it helps with the accounts. *Looper* is conveniently forthcoming about how its exchange circuit works. The killers of 2044 are paid in bars of precious metal – silver

for ‘ordinary’ hits, gold for ‘closing loops’ (in singular acts of self-termination). The bullion is sent back from 2074, and circulated through an internal exchange operation, which normally swaps it for (Chinese) paper currency.

§3.1 What *Looper* presents as merely a payments system tacitly describes an under-performing money-making machine. By operating it, one realizes a monetary process that exceeds the most feverish Austrian School economic nightmares. The time-machine *prints precious metals*.

§3.2 Consider an ingot of gold. Assuming perfect durability – no great stretch across historically-relevant time-scales and in the absence of abnormal nuclear processes – its physical substance can be understood as existing throughout the whole of the time-line. Once mined, and consolidated as a standard unit, it lasts ‘forever’. Now place this unit of bullion in a time-machine, and deposit it three-decades back in time. Like the human time-traveler, it is ‘now’ doubled. Since it already existed at every moment in the past, at the point of its retro-arrival it now occupies the same position in time twice, and continues to do so, throughout all subsequent time. Place it then beside its original instance, in a vault. After thirty years have passed, there are two ingots available for reverse chronoportation. Remove them from the vault, and put them into the time-machine …

§3.3 If this seems like a thirty-year doubling period, appearances can be deceiving. It is ‘in fact’ (or at least in consistent fiction) instantaneous. Set up the time-machine beside the vault, and envisage the procedure from the perspective of the operator, in 2074. Open the vault. It contains one gold bar. Remove it, place it in the chronoporter, set the destination to 2044, activate. Cross immediately to the vault. It now contains two gold bars. Remove both, return to the chronoporter, repeat. Cross immediately to the vault. It now contains four gold bars. Quite soon, we’re going to need a bigger vault. This is the model for a bullion fast-breeder. Assuming – preposterously – that value persists under such conditions, the

time machine generates a smoothly exponential increase in wealth, approximately for free.

§3.4 It would be surprising if the linkages between time-travel and political economy were anything other than nonlinear. Neither the economics nor the politics of time-travel is a compact, still less a straightforward topic. As public drama, time-travel is a production, in a sense that absorbs logistic and commercial attention, no less than theatrical direction. The relevance of monetary theory is, perhaps, less expected. Yet it is quite clear that a hard money criterion satisfies a selective function in respect to the operation of time machines. Elimination of all inflationary time machines automatically re-integrates a singular timeline, however topologically complicated it might be. Conservation laws are preserved. Economic analysis is applicable to questions of time discipline, which selects out ‘time-travel’ trajectories as non-serious as soon as they change the past.

§4.0 Approaching the same problem from a very different direction, H. P. Lovecraft insisted upon time discipline as a literary principle, most notably in a letter to Clark Ashton Smith (1930): *Your idea for a time-voyaging machine is ideal — for in spite of Wells, no really satisfactory thing of this sort has ever been written. The weakness of most tales with this theme is they do not provide for the recording, in history, of those inexplicable events in the past which were caused by the backward time-voyagings of persons of the present and future. It must be remembered that if a man of 1930 travels back to B.C. 400, the strange phenomenon of his appearance actually occurred in B.C. 400, and must have excited notice wherever it took place. Of course, the way to get around this is to have the voyager conceal himself when he reaches the past, conscious of what an abnormality he must seem. Or rather, he ought simply to conceal his identity — hiding the evidences of his "futurity" and mingling with the ancients as best he can on their own plane. It would be excellent to have him know to some extent of his past appearance before making the voyage. Let him, for example, encounter some private document of the past in which a record of the advent of a mysterious stranger*

— unmistakably himself — is made. This might be the provocation for his voyage — that is, the conscious provocation.

§5.0 Remembering that *'time-travel' is the dramatization of something else*, these musings from inter-bellum Providence initiate a virtual tour of the Shanghai time-travel industry. It's not new (unsurprisingly), but it is growing fast. *Looper* is unmistakably part of it. The City of the Future entangles urban spectacle inseparably with prophecy. One sees, now, what is yet to come. The impression is anachronism. Even the strangest idea, given only sufficient capitalization, can be constructed as a communicable intuition.

§5.1 It begins, in the middle, with Deco. *Art Deco*, we are told, from one side, in little more than a whisper – for this is a 'tradition' remarkable for its verbal inarticulacy. There was no Art Deco Manifesto. For over three decades, there was not even a name. The opportunity for theoretical self-comprehension – if it ever existed – was missed (and no remedy is yet in sight). *Decoding* is its basic impulse, we might presume, when its concrete accomplishments are registered. It is scrambled code, in any case. *Decopunk* has been irreverently recommended as the name for its anachronistic or 'retro-futurist' return. 'Deco' will eventually do, as the sign of a vivid yet unspoken modernity.

§5.2 As we know, what spoke of modernity – to the point of radical identification, usurpation, or near-total absorption of the historical impulse self-apprehended as *modernist* – was the 'International Style', defined by an uncompromising *logic* of functional and geometrical idealization. By projecting an elimination of all discernible geo-historical or cultural reference from the urban landscape, such 'modernist' designs aspired to the universality of a *negative cosmopolitanism*, liberated from the entrapments of peculiarity. Abstraction was to be attained through monumental anti-constructions, the world's first *absolute edifices*, unfixed from the coordinates of space, time, and tribe, and thus supporting – whether by incidental necessity or strategic design – a discourse of intrinsic

global authority, combining the most exhaustive programmatic practicality with the loftiest theoretical purity. Through the International Style social structures of all kinds, spearheaded by exemplary public buildings, were to find their consummate reconciliation with the universally communicable Idea.

§5.3 This is the modernity from which 'postmodernity' has noisily departed. Since the 1960s, postmodern criticism has condescendingly reconstructed (and aggressively 'deconstructed') a model of cosmopolitan modernism that conforms to the vision of its most *clearly outspoken* architectural proponents, the partisans of the International Style, whose complacent assumptions of cultural neutrality and universal authority provide an organizing object of disparagement. This self-demolishing digression is designed solely to announce the irrelevance of its topic, in the name of Deco (the world's essentially undeconstructible modernity). Postmodernity has no application to Shanghai.

§5.4 'Decopunk' is the sign of a return. Its complexity can seem overwhelming. It folds back, exorbitantly, into that which had already folded into itself. Nothing expresses the cultural tendency of *positive cosmopolitanism* more completely, more cryptically, or more surreptitiously than the Deco modernist matrix thus re-activated. Its mode of abstraction is inextricable from an ultimate extravagance, intractable to linguistic condensation, and making of *decoration* a speechless communication, or ecstatic alienation, through which interiority is subtracted. Emerging from the fusion of streamline design trends with fractionated, cubist forms and the findings of comparative ethnography, it exults in cultural variety, arcane symbolism and opulence of reference – concrete colonial epistemology and metropolitan techno-science are equally its inspirations – as it trawls for design motifs among the ancient ruins of Egypt and Mesoamerica, Chinese temples, recursive structures, sphinxes, spirals, ballistic machine-forms, science fiction objects, hermetic glyphs and alien dreams. It is neither language nor anti-language, but rather supplementary, ancillary, or excess code,

semiotically-saturated or over-informative, hyper-sensible, deviously circuitous, volubly speechless, muted by its own delirious fluency. It has no specific ideology, but only every ideology. If it ever existed, it always has.

§6.0 Every singularity is an exception. No emergent real individual is able to fall, without remainder, under a general law. ‘Shanghai time-travel’ cannot merely be a typical phenomenon, or the instance of a wider regularity, whether socio-political or philosophical. Each such anomaly is scaled to the city, capturing its absolute, cosmic contour. (The way it happened is telling.)

§6.1 The architecturally-incarnated time-structure of Shanghai modernity has four principal – but intricately interconnected – ‘layers’. These correspond approximately, and coincidentally, to orders of historical succession, structural elevation, and capital density.

§6.11 The first stratum is composed of a thoroughly, and repeatedly, reworked exhibition of the city’s pre-modern legacy. Now concentrated in the iconic cluster of the Old City, and distributed among the city’s gardens and temples, it has acquired a fully contemporary – and primarily recreational – function as urban historical stage-scenery. This ‘Ancient Shanghai’ is a theatrical simulacrum of native (*Jiangnan*) tradition, whose modernity lies specifically in its strategic inauthenticity. Even during the relatively early years of the colonial period, the Old City was adjusting itself pragmatically to this role, through experimental branding of lost time as commercially re-packaged antiquity. In Shanghai, it is the enduring tradition of historical re-staging, and not the durability of the re-staged object, that trawls up the deep sediment of urban time.

§6.12 Secondly, and traditionally constituting the preponderant mass of Shanghai’s modern architectural substance, is a stratum built gradually from lane housing blocks (*lilongs* or *longtangs*), over the course of a century (from roughly the mid-19th century to the mid-

20th). As modernity ignited in Shanghai – under foreign protection – the city was infolded by compressive growth, which had made it the world's most intense urban space by the late 19th century. The *lilongs* were its most distinctive contribution to the world of architectural possibility. Fundamentally hybrid, practical, and opportunistic, they synthesized Western terracing with Chinese courtyard-centered arrangement to produce an innovative mass housing solution local to the city, characterized by fractal involution, commercial-residential micro-fusion, and design diagonalization between mass-production of standard units and resilient idiosyncrasy. This level of the city is at once the most tractable to formalization, and the most elusive in its integral secrecy. It is into the discreet bulk of the *lilongs* that Old Shanghai slips, when it disappears from casual scrutiny, as if into an implexed, urban hinterland. Somewhere in these 'mazes' or 'warrens' lies the Sphinx's lair.

§6.13 Rising above the *lilongs*, and clustered in zones of exceptional early 20th century economic current (especially the major thoroughfares of the International Settlement), are the edifices of Shanghai modernity's third – Deco-dominated – stratum. These are buildings that most definitively symbolize the historical city, by making its high-modernist 'Golden Age' a *theme*. In Deco, Shanghai modernity is instantiated as, or at least alongside, a non-verbal philosophical reflex, which seizes the urban time-structure as a self-referential object. It is this silent self-commentary (through which modernity becomes *modernist*) that connects Deco to the infinite – as unbounded recursive potential – and thus initiates the forward time-loop of Shanghai's peculiar destiny. Whatever happens henceforth, its return has been anticipated, with mute lucidity, and intricately encrypted within the signs of the city's high-modern futurism. An ultimate epoch is reached, and scrambled within a retro-silted code.

§6.14 Finally, therefore, there is a retarded arrival of mainstreamed global modernity – still adorned by the tattered ideological iconography of the International Style – but pre-emptively ironized by

the precocious retro-futurism of Shanghai Deco. At its moment of arrival it has already been obscurely outflanked, or outstripped, by an ignited time-circuitry immunized against its specific teleological pretensions. This is a condition that might be consistently labeled *Neo-Modern*. On one continuum, it extends from the vulgar Bauhaus garbage of the command economy era, through utilitarian construction of more recent times, to the glistening super-tall towers designed by international architectural giants, but it extends far further – and perhaps even more consequentially – across a myriad *renovation* projects of wildly variable grandeur, which have as their common principle an explicit absorption of modernity into something new, precisely equivalent to a dispersed exhibition of *modernist heritage*. The complex trend built-out through the city's contemporary architectural evolution inclines towards a display-casing of itself – simultaneously self-referential and retro-futural – a repetition, a subsumption, and a return. It would be easy to be persuaded that Shanghai's sole profound obsession is time travel.

§7.0 The tombstone of Ludwig Eduard Boltzmann (1844-1906) is capped by an inscription of his entropy formula $S = k. log W$. There is no need for us to pause before the tangle of ironies here, which can be left for the worms. It is merely an opportunity to speculate upon a different – and virtual – tombstone, dedicated to Cyberpunk innovator William Gibson (1948-20??) whose epitaph has long been confidently predictable: *The future is already here — it's just not very evenly distributed*. Even shallow digging quickly begins to reveal the profound content that the two formulations share.

§7.1 A 'city of the future' is Gibsonian in precisely this sense. That is nothing new, nor could it be. It has always leaked back, in coincidence with modernity. Tomorrow is a social magnet, as has been known for some considerable time, at first merely reflectively, but ever increasingly as a techno-responsive object. It is in part an excludable good, and not uncommonly even a positional one, even if the simultaneous – and extraordinary – inclusiveness of futuristic spectacle will also tend to delay us. Panoramas are rarely perfectly

privatized, but the future is not available *just anywhere.* On the contrary, it is the object of multi-level, intense competition. It is something to be cultivated, tended, bought, sold, and built upon.

§7.2 Cities of the future are shaped by intense competition, because tomorrow is a tight, fiercely contested niche. As a unit of Social Darwinism, the futuristic city is comparable to an exotic tropical flower. It competes, primarily, through attraction. There can be a few of these cities, but only a few. Merely to speak of a 'global city' is already to acknowledge all of this. Sustaining the singularity of the time-line weeds out feeble pretenders, with unique ruthlessness. Futurity is unevenly distributed because it is scarce.

§7.3 It is here, precisely, that the greatest threat of misdirection arises, in a confusion between *losing the future* and *being left behind*. Such an equation overlooks the most notable feature of time-travel stories – their tolerance for retrospective science-fiction. To speculate upon a future that unlocks time-travel technology is to re-open the past, with progression twisted into an opportunity to regress. In China, especially, where the super-massive gravity-well of tradition has historically absorbed the preponderant part of speculative imagination, this peculiarity offers science fiction a chance to insinuate itself, around the back. Futurism enters the culture cloaked as renascent antiquity.

§7.4 Advance into antiquity is no curiosity of ethnicity or genre. It is rather a commonplace of modernity. Estimations of the earth's age, within modernity's classical (Occidental) core, suffice to illustrate this fact. The time-twinned figures describe an erratic yet unambiguous trend. The traditional beginning of terrestrial time corresponds approximately to the date implicit in the Hebrew Calendar, which counts from one year before creation of the world, less than six thousand years ago. By 1779 Buffon had pushed it back by an additional 70,000 years, and stripped it of all metaphysical originality. Kelvin's calculations, although notoriously impaired by the absence of a radioactive theory of heat, had nevertheless extended the

earth's age by well over two order of magnitude by 1862, to an uncertain range from 20-400 million years. By the 1920s, scientific consensus was closing upon the present (confident) figure – a few billions of years. In this respect, time modernization has been an exponential lurch into the deep past.

§7.5 As time modernization advances, it reaches back, but it also pushes in. Considered as sheer quantified improvement, the progress, or *ingress*, of temporal resolution through horology and chronometry has far outpaced the expansive development of time. The mechanical clockwork of the early modern period, up to the end of the 16th century, had reached an accuracy of roughly one minute per day. Pendulum clocks, based on the principles of Christiaan Huygens from the final years of the 17th century, reduced time-drift to less than a minute a week. H5, the maritime chronometer that won John Harrison the Longitude Prize in 1759, drifted by less than a half-second per day. By the 1920s, quartz oscillators had entered onto a development path which would eventually achieve accuracies of 10 seconds per year. Mid-20th century atomic clocks (cesium oscillators) crushed error down to a second every 300 million years, which the first quantum logic clock (2008) shrunk to less than a second in a billion years. With each advance in accuracy came a corresponding mechanical granularization of time.

§7.6 Modernization advances into the depths of time, in a double sense (at least). It promotes a disciplined regression (into the past) and an involution (into the 'inner' micro-structure of time). There is an augmentation of the zoom function – a 'liberation' of sorts – scrambling convenient discriminations between modernity and tradition.

§7.7 Like time-travel, modernity in its distinctive, progressive sense is the dramatization of something else. As an exoteric sign, public display, or collective drama, its central theme is a break-out from confinement within cyclical time. In this respect it bears a striking theological message, recapitulating the understanding of Judaism as

the ‘discovery of history’ – a revelatory transition distinguishing Abrahamic from pagan religion, industrial from rural society, and cosmic mission from indigenous peculiarity. The attractions of this popularization are not hard to understand. After all, from the perspective of progressive modernism, cyclical stability is a trap, broken open (uniquely) by the ignition of self-reinforcing, cumulative growth. So persuasive is this vision that its subversion counts as perhaps the greatest of modern ironies.

§7.8 Though staged as a break from the cycles of time, modernization is more realistically envisaged as a flight *into* cyclicity. Its primary signature – accelerating change – is itself a product of non-linear functions (epitomized by exponentiation). The modern, industrial economy tends inexorably to the self-exciting circuit of the robotic robot factory, and its autonomization is accompanied by strengthening quasi-periodic oscillations – business cycles, and long waves. As its culture folds back upon itself, it proliferates self-referential models of a cybernetic type, attentive to feedback-sensitive self-stimulating or auto-catalytic systems. The greater the progressive impetus, the more insistently cyclicity returns. To accelerate beyond light-speed is to reverse the direction of time. Eventually, in science fiction, modernity completes its process of theological revisionism, by re-discovering eschatological culmination in the time-loop. *Judgment Day*. The end comes when the future reaches back, to seize us.

§8.0 The stretching and twisting of time propels a passage from geometrical objectivity to topological abstraction. Yet, ‘paradoxically’ – to invest this term with the vague sense it bears in the time-travel literature – the escape of time into topology begins with a geometrization. H.G. Wells, in *The Time Machine*, conceives time’s irreducibility to geometry as a constraint. Relative to spatial dimensionality, time is a prison. Locomotion in time – time-travel – is uniquely locked, even relative to the vertical axis within which movement encounters its most obvious impediments. The eponymous time machine breaks the shackles of the time

dimension. This first modern time-travel narrative, therefore, is primarily a treatise on freedom. Its greatest fictional innovation is an intuitable ‘model’ of liberation within the time-line. (When referring to ‘time-travel’ it is the Wells model that durably anchors its meaning.)

§8.1 The integrity of the time-travel problem with the question of metaphysical liberty is a key to both doors. The Grandfather Paradox makes this evident. *If an individual could return to his past, what would prevent him from assassinating an ancestor, and thus making an inconsistency of his own existence?* The quandary tacitly acknowledges a contradiction between time-travel and radical private agency. In other words, no less than a paradox about time-travel, it is a depiction of self-contradictory freedom, in the absence of temporal constraint. One cannot return to the past to do as one wants, unless what it to ‘want’ anything (in reality) has already undergone fundamental revision. The freedom to choose an action inconsistent with one’s established existence as an agent makes no sense. It is not a constructible circuit.

§8.2 A drama requires actors. If an inadequately-interrogated conception of agency can disguise itself as a logical conclusion about the shape of time, it is worth asking how far this dissimulation can reach. To what extent has the world been fundamentally dramatized? Could the basic framework attributed to ‘nature’ have been conditioned by the requirement that it serve as a stage for intelligible action? Such a question is nothing more than the Grandfather Paradox inverted, and employed as an investigative tool. Certain deeply-rooted intuitions about human agency, it might be suspected, exercise surreptitious authority in respect to tolerable conceptions of time. A dogmatic presumption of empirical human freedom – long understood to be implausible, and even unthinkable, by the tradition of transcendental-philosophical critique – has not only survived the supposedly irresistible onslaught of mechanical determinism, but has even maintained its dominion over the basic (temporal-causal) structures of natural-scientific explanation, which have been pre-programmed for conformity with its dramatic criteria.

§8.3 This is, recognizably, the Nietzschean skepsis, sealed by the figure of eternal recurrence, or ultimate nonlinearity of time. The natural sciences, even in their apparent sovereignty over the entire domain of empirical regularity, remain *enslaved* to an occluded idea of freedom, in whose terms they are parametrized, and in accordance with which 'determinism' is itself determined as a false opposition, bound to confirm in profundity that which – superficially – it denies. The keystone of this critique (and the entire preceding tradition of critical philosophy) is the transcendental argument that there is not, and cannot be, any conception of temporality properly *internal* to the natural sciences. Time is a basic presupposition, enabling access to phenomena, without constituting one itself. Duration is known only indirectly, through changes scientifically apprehended – measured – in reference to a cyclical criterion (which is to say, a 'clock'). The general relativization of duration within 20th century physics has confirmed the status of change (speed) as the scientific limit-concept, beyond which no rigorous objectification of time is able to proceed. The theater cannot be subsumed into the play.

§8.4 For backward or reverse causality to be an intelligible concept, there has 'first' to be a time-gradient. The time 'dimension' – unlike those of space – has to bear an intrinsic directionality, or asymmetry, which classical mechanics does not provide. It is only with statistical mechanics, and the formulation of entropy measurement, that time acquires an 'arrow'. Thus equipped, the natural sciences have entitled themselves to a new, supplementary vocabulary. No longer restricted to descriptions of *causation*, they are now (which is to say, since the mid- to late-19th century) freed to enter into discussions of *production*. From "A then B" to "A makes B" there is a shift into the order of temporal irreversibility. Unlike classical-mechanical entities, statistical-mechanical products bear intrinsic indices of succession, of a general economic type. Entropy measures of a global (or closed) system are production-time ordinates. The sequential order of any production phase is inherent to it, as a natural property.

‘Before’ and ‘after’ are not read-off from the time-line, but inscribed within the terms of the series themselves. Within the directional time of production, therefore, linearity is re-doubled, or reinforced. Reversion is explicitly obstructed. (The thermodynamic argument against time-travel is the strongest that exists.)

§8.5 Modernity only linearizes in order to delinearize more thoroughly. The descendant of the thermodynamic time-gradient is cybernetics, based upon the formulation of thermic regulation through feedback (the steam-engine ‘governor’), and ascending through increasingly sophisticated models of entropy dissipation – or local entropy decrease – into the mathematical sciences of turbulence, chaos, complex systems, self-organization, individuation, and emergent (or spontaneous) order. The abstract object of all such studies is the *convergent wave*, characterizing all natural process with reverse time-signature. Any such *local inversion of the arrow of time* is produced by an exportation of entropy, conducted by a dissipative system, or real time machine. These systems typify the self-assembling units of biological and social organization – cells, organisms, eco-systems, tribes, cities, and (market) economies. In each case, an individuating complex machine swims against the cosmic (global) current, piloted by feedback circuitry that dumps internal disorder into an external sink. The cosmic time-economy is conserved, in aggregate, but becomes ever more *unevenly distributed* as local complexity is enhanced. Self-cultivating – or auto-productive – complexity is time disintegration (templexity).

§9.0 Real templexity cannot be time-travel. The same natural-scientific conceptual apparatus that enables its formulation simultaneously installs the principles of thermodynamic economy that discipline its models. When rigorously stressed under logical examination, however, time-travel drama tends to release abstract diagrams that converge upon real potentialities. Most significantly, it arrives – through pure fictional hypothesis – at a schematics of auto-production.

§9.1 The auto-productive potential of time-travel circuitry attains exact conceptual specification in the *Bootstrap Paradox*. Wikipedia provides a succinct illustration: "A man travels back in time and falls in love with and marries a woman, who he later learns was his own mother, who then gives birth to him. He is therefore his own father and, because of this, also his own grandfather, great-grandfather, great-great grandfather, great-great-great grandfather and so on, making his ancestry infinite, and also giving him no origin for his paternal genetic material." The Oedipus myth echoes this structure so closely it is tempting to consider it a model of the Bootstrap Paradox, unfolded into disentangled time. It illustrates templex auto-production in a dramatic, anthropological form.

§9.2 Tim Powers describes a literary version of the Bootstrap Paradox in his novel *The Anubis Gates*. In this telling, the death of the father becomes the death of the artist – in the guise of a fictional non-person, early 19th century poet William Ashbless, known only for his work 'The Twelve Hours of the Night'. Ashbless scholar Brendan Doyle travels back to the poet's time, seeking to meet him in the tavern where and when the work was thought to have been composed. There is no sign of Ashbless. Doyle wiles away the time writing out the poem which he has exactly memorized. This copy, we already suspect, was the original. The poem had no author, but only a scribe, functioning within a closed-circuit of auto-genesis. (It would distract us unduly to investigate how a fictional non-existence is to be distinguished from a real one.)

§9.3 The *Terminator* mythos is by far the most important dramatization of bootstrap mechanics, when gauged by cultural impact. Of the multiple movies belonging to the franchise, the first two are conceptually decisive. In the first, a robotic assassin is sent back in time by Skynet to kill the mother of human resistance leader John Connor, reprising the genealogical theme to which time-travel narratives are so often attracted. It is eventually destroyed in a hydraulic press. Sarah Connor survives to give birth to the savior. (A decorously-displaced Oedipal loop casts John Connor's friend and

generational-peer as his father.) These events are dated to 1984. In the second movie (*Terminator 2: Judgment Day*) it is revealed that the control chip from the crushed Terminator machine has been recovered, by Cyberdyne Systems, to supply the core technology from which it will be built (in 2029). The Skynet threat is not merely futuristic, but fully templex. It produces itself within a time-circuit, autonomized against extrinsic genesis. The abstract horror of the *Terminator* franchise is a matter of auto-production.

§9.4 Even in its comparatively tame, fully mathematico-scientifically respectable variants, feedback causality tends to auto-production, and thus to time-anomaly. Any nonlinear dynamic process, in direct proportion to its cybernetic intensity, provides the explanation for its own genesis. It appears, asymptotically, to make itself happen. Cybernetic technicity — epitomized by robotic robot-manufacture — includes a trend to autonomization essentially. Pure (or idealized) capitalistic inclination to exponential growth captures the same abstract nonlinear function. Capital, defined with maximum abstraction (in the work of Böhm Bawerk), is *circuitous production*, in a double, interconnected sense. It takes an indirect, technologically-conducted path, routed through enhanced *means of production*, and it turns back upon itself, regeneratively. As it mechanizes, capital approximates ever more closely to an auto-productive circuit in which it appears – on the screen – as something like the 'father' of itself (M → C → M'). There's no political economy without templexity. (You'll have plenty of opportunities to catch this movie again.)

§9.5 For over a century (but less than two) Shanghai Capitalism – despite dramatic interruption – has been building a real time machine, which Rian Johnson, among many others, stumbled into, and tangentially fictionalized. Although the detailed workings of this machine still escape public comprehension, its intrinsic self-reflexion ensures its promotion, as an object of complex natural science, of spectacular dramatization, and of multi-leveled commercialization. It enthralls East and West in an elaborate exploration of futuristic myth. At its most superficial, where it daubs the edges of the mind with its

neon-streaked intoxication, it appears as a vague but indissoluble destiny. What it is becoming remains to be recalled.

§9.6 “What the hell did we just watch?”
That’s always the question.

§9.7 Which leaves us, for the moment, with Joe talking to himself in an American diner, his identity divided generationally, across a gulf of unprocessed Shanghai memories. A Wells-class private time-pod has been dramatically substituted for the city, but – because this is cinema – everyone is overlooking the stage effects for now.

“This is going to end raggedly, isn’t it?” says the young Joe. (He has a contract to execute.)

“It’s going to end?”

“When did this stop being about business, and become an exercise in the topology of time?”

“It never stopped.”

“So what happens next?”

“Really, after all of this, you still don’t remember?”

“Well, now you ask, I think – at least *I think that I think* – it’s coming back …”

Cybernetics

The word ‘cybernetics’ is derived from the Greek ‘kubernetes’ (meaning ‘steersman’). As a self-reflective theoretical discipline, cybernetics dates back to 1948, when it was formulated by Norbert Weiner as “the science of control and communication in animal and machine”. It sought to combine the emerging science of information and new electronic computing technologies with a disciplined attention to feedback mechanisms, which provide the key to the self-regulation of behavior. By adjusting its activity in response to sensory feedback, a biological or technical machine was able to ‘home’ on a targeted state.

An elementary example of such a feedback or cybernetic mechanism is provided by a simple thermostat. A heater (or cooler) is coupled to a temperature sensor, which returns information about its actual performance, i.e. the external temperature produced. The behavior of the device is then automatically adjusted, guiding its performance towards the target temperature. A thermostat illustrates the phenomenon of negative feedback, or homeostatic control. A negative feedback loop is self-inhibiting. It works to restrain behavior that exceeds pre-set performance targets, stabilizing a system.

In more complex, spontaneous, and diffuse systems, comparable negative feedback mechanisms can be identified wherever a process exhibits self-limiting behavior. Ecologies are replete with – and even defined by – many examples. For instance, in predator-prey relationships, excessive predator ‘performance’ decreases food supply (prey animals) which feeds back to reduce the predator population. Reciprocally, a population explosion of prey animals fosters growth of predator numbers, with similar self-limiting effect.

Weiner’s attention was almost entirely devoted to negative feedback mechanisms, and thus to self-stabilizing systems. From his practical,

engineering-oriented perspective, positive feedback, or ‘runaway’, was best interpreted as control malfunction: an excessive amplification that would be inevitably corrected when it reached the limits of its expansion. There were (to anticipate a later term) strict ‘limits to growth’ that would eventually cage and drastically reverse any self-reinforcing or accelerating trend. A well-designed cybernetic mechanism would pre-empt the collision with hard external limits by restraining itself, through negative feedback, to a stable and moderate behavioral range.

As cybernetics matured and expanded to encompass ever-larger and more intricate ‘objects’ – typically under alternative names, such as ‘general systems theory’ – it increasingly encountered very-long-range trends to continuous acceleration, bound only by weak and transient limits. Through application to the core dynamics of cosmological, biological, social, and technological evolution, cybernetics shifted its emphasis. Runaway, self-reinforcing processes became the central object of attention, and a ‘second cybernetics’, emphasizing the role of positive feedback phenomena, adopted the principal piloting role. Self-sustaining explosions, rather than dampening mechanisms, were now the primary cybernetic theme.

The universe is a continuing explosion. So is terrestrial life. The development of multicellular animals (with brains) is explicitly attributed to the Cambrian Explosion. With the emergence of *homo sapiens*, culture explodes too, through the successive detonations of literate civilization, industrial revolution, and electronic intelligence production. For any sufficiently panoramic realism, it is accelerating growth, rather than system stability, that defines normality.

Civilization is an accelerating process, not a steady state. As its name suggests, it is channeled primarily through cities (which explode). The incandescent intensity of a hypergrowth-dominated urban future consumes our historical horizon, and an exceptionally impressive perspective on this developing spectacle is to be found in

21st century Shanghai – a fact Hollywood has no real choice but to relay.

As cybernetics has eaten the world, it has retreated into invisibility, rendered inconspicuous by the absence of significant contrast. Nonlinear dynamics, as the old saw goes, is roughly as specific as non-giraffe animals. If it is today more convenient to speak, for example, of ‘the Anthropocene’ it is because something other is still available for recall, or – at least – is imagined to be. Yet tangles remain tangles, even for those inextricably tangled within them, and the greatest tangles of all are still only very partially seen.

Distribution

Cities are time machines in *exactly* the same way they are anomalous distributions. Population concentration – thematized with extraordinary theoretical and terminological inadequacy as ‘urbanization’ – is a key to the disorder of time which remains almost completely unused.

There is a simple analogy that captures every immediately pertinent aspect of the topic. During the late-19th century (from 1870) statistical mechanics sought to establish probabilistic laws that would predict the behavior of large populations (of particles). Its model experiments involved compartmentalized tanks, in which different gases could be combined, and their approach to a homogeneous or fully-mixed distribution studied. Completely homogeneous intermixture and diffusion was defined as the entropy maximum of the system, its equilibrium state, with the departure from this limit measurable as its ‘negative entropy’ (or disequilibrium).

Our analogy works best if the gas tank consists of two chambers, one filled with gaseous hydrogen and the other a hard vacuum. When the divider is removed, the gas diffuses explosively into the empty space, tending to its equilibrium distribution (entropy maximum) of homogeneous density.

If every hydrogen atom is made to represent a (proportional) demographic unit, within an open system (capable of exporting disorder into a wider environment), it is necessary to subtract the assumption of normal physical behavior, and time signature. To run a modernist-historical model is to reverse the natural trend or divergent wave (as complex systems do), which is best illustrated by beginning with a fully entropic distribution of homogeneous density. The tank now describes a completely non-urbanized population (0% urbanization).

Gradually, as social order emerges, the atoms clump together into small ‘settlements’, then into ‘towns’, then into ‘cities’. Once the quantitative threshold for city status has been decided and reached, urbanization begins. The distribution of the gas becomes increasingly heterogeneous, as particles are attracted into larger and larger clumps. The entropy of the system steadily falls. Eventually, most of the particles will belong to ‘city-sized' clumps, and the population will be predominantly urbanized. If all the particles agglomerate into large clumps, total urbanization is reached (or, more probably, closely approximated).

Be careful with this gas tank, by the way. Hydrogen is highly inflammable, and could explode.

None of our clumped hydrogen atoms began fusing into helium upon reaching a density crisis. In a real city they would, as new types of social grouping and inter-linkage arise, driving innovation. Yet even without the appearance of conspicuous *emergent properties*, the basic lesson of our toy history is unmistakable. Played back, in reverse, it displays a perfectly normal statistical-mechanical process, as disequilibrium concentrations smoke-off in diffusive, divergent waves. Civilization – in its strict, urbanistic sense – evaporates into fizzing homogeneity. Upon reaching entropy maximum, it wanders randomly through micro-states, while preserving an unchanging macro-state, without time gradient. Video segments sampled from the entropic epoch can be freely shuffled, played forward or backward, without detectable consequence. The manipulations remain lost in undifferentiated hiss.

Such cinema-format time-reversal ‘thought’ experiments involve no special effects that history has not already demonstrably produced, no trick that isn’t already manifested in the modernist core phenomenon (and abundantly elsewhere). Run the recordings as many times as you like, backwards and forwards, until even blatant anomaly seems familiar, and natural. The city is *unquestionably* – or

(to say what is in reality exactly the same, but this time with greater caution) *vividly* – a time machine. It cannot be made without time reversal, and everything we know about historical geography tells us that it is coming to a screen near you.

Notes

All note-numbers correspond to paragraphs above, with letters added when required to distinguish multiple notes. URLs, in hard brackets, are compiled at the end. For active links see the Templexity page at *Urban Future (2.1)* [00].

#1.0a *Looper* at the *Internet Movie Database* [01].

#1.0b A process of self-reinforcement (or positive loop) is already evident at the most mundane level of *Looper*'s socio-historical realization. The movie's framing geopolitical scenario has been culturally anticipated, and thus works as a *confirmation*, which neatly coincides with a concrete business opportunity: "Johnson felt that the offer from his Chinese distributors helped the film fit into a common idea about the future, which is that Asian megacities will be tomorrow's lands of opportunity." [02] Simply following this circuit, with sufficient doggedness, tells us almost everything in advance.

#1.1 Since Reform and Opening reached the city, Shanghai's succession of vertical development-tidemark towers have all been situated in Lujiazui, business-core of the Pudong New Area. Each of these buildings – the Pearl Orient TV Tower (1994), Jin Mao Tower (1999), Shanghai World Financial Center (SWFC, 2008), and Shanghai Tower (2014) – makes an overt architectural statement about historical time, formulated as a referential loop through tradition. These display circuits have been consecutively dilated, as they extend back through Sputnik-socialism, Deco, and *Jiangnan* garden-design (encrypted with the lost moon-gate that was to top the SWFC), to an opening scroll, in which the enveloping spiral of civilization is recapitulated.

#1.2 Time-travel is a model of ultimate subversion, so its manifestation can be expected to trigger a security response. To the

extent this is not seen, the deficiency can be confidently interpreted as non-seriousness … but then it gets complicated. The signature of time-travel is entangling irony, cross-linked to the plasticization of memory, and this is most conveniently denounced as irreverence (or non-seriousness of another kind). This allows for the categorization of time disturbance as a non-serious issue, which merits serious attention precisely on this account. The formal statement publicized by the Chinese broadcasting authorities on the problem of emergent time-travel ideology takes this approach, almost exactly [03]. The Western reportage was – no less expectedly – frivolous in a perfectly reciprocal sense [04].

#1.4 Even the most pedestrian (and, indeed, scarcely literate) account of the concrete *Looper* production process finds itself drawn into templex considerations of the spiral, the double, speed modifications, and time disintegration: “The director of *Looper* Rian Johnson … cut these scenes out of the movie but the Chinese backers wanted [them] back in to showcase the streets of Shanghai for Chinese audiences. The production came to a compromise and the result was two versions of *Looper*. The scenes, involving Gordon-Levitt’s character’s downward spiral, were cut out [of] the American version because test screeners felt it slowed down the pace of the film, while Chinese test screeners didn’t mind the narrative slowdown.” [05]

#1.5 On another – hypothetical – time line, where the ideo-politics of time disturbance were more consistently emphasized, the theme of ‘revisionism’ would have maintained a dominant position throughout. Between revisions of the past, which constitute the principal narrative permission of the time-travel plot, and revisions of ideological doctrine – indissolubly bound to the topic of official history – the boundary is wholly illusory. Insofar as such a border is taken to exist, this is entirely due to systematic intellectual neglect.

#1.6 The stressed formula here, while echoing traditional philosophical concerns about the relation of appearance to reality, is

situated by a fundamental intolerance for the epistemological frame. The subject who pretends to know is a dramatic personification of productive time circuitry. The staging of the philosophical dilemma suggests – at a minimum – theatrical ironization. Hence the expectation that cinematic depiction, considered as a contemporary display mode of the urban process (or time machine), will consistently run ahead of the philosophical proposition, while providing its content, and even organizing its manifestation. The socially-formalized philosophical position lacks the resources to frame itself authoritatively, except through idealization. It is *zoomed-in* (staged, enveloped, or embedded) relative to the operational contexts accessed by capitalist mass media, which are technically and financially empowered to *make even the city a set*.

#1.6 “What happened to America?” is the Cyberpunk question *par excellence*.

#2.0 The double, or “temporal doppelgänger” [06], is the principal dramatic representative of the *uncanny* in time-travel fiction. Freud’s (1919) reading of ETA Hoffman’s ‘The Sandman’ is an inevitable reference [07]. Shane Carruth’s *Primer* (2004) remains the most extreme development of the device [08]. See also Christopher Nolan’s *The Prestige* (2006), for a comparably brutal study of redundant duplicates, in which the mechanics of time-travel are less prominently foregrounded [09]. The theoretical synthesis of this topic with that of near-futuristic mind-copies – such as Robin Hanson’s ‘ems’ [10] – can be anticipated with some confidence.

#2.1 Arthur Rimbaud’s *“Je est un autre”* was recorded in a letter to Georges Izambard (13 May, 1871) [11]. This remark, together with the pointed disturbance of the Cartesian *cogito* immediately contextualizing it, tags a threshold of literary modernism, and thus – retrospectively – an action of the future upon the past.

#2.4 Rian Johnson interview at slashfilm.com [12]. When asked by Heat Vision, at The Hollywood Reporter, *What are some of the*

biggest hurdles for time-travel movies? Johnson answered: “Figuring out how much to explain, figuring how to keep it simple. With this film especially, because even though it’s a time-travel movie, the pleasure of it doesn’t come from the mass of time travel. It’s not a film like *Primer …* for instance, where the big part of the enjoyment is kind of working out all the intricacies of it. For *Looper*, I very much wanted it to be a more character-based movie that is more about how these characters dealt with the situation time travel has brought about. So the biggest challenge was figuring out how to not spend the whole movie explaining the rules and figure out how to put it out there in a way that made sense on some intuitive level for the audience; then get past it and deal with the real meat of the story.” [13]

#2.5 Brad Bevet blog post [14]

#2.6 The Chinese astro-calendric cycle, generated by the combinatorial exhaustion of twelve annual ‘animals’ (or ‘branches’) and five elements, is a 60-year period, alternating between (30-year) phases of light and darkness. The synchronization of this rhythm with the country’s modern history – most notably the duration of the 1949-79 command economy era – is (at the very least) casually intriguing. A further associative leap to the 30-year (2044-74) *Looper* cycle, however, might reasonably be accused of recklessness.

#2.7 Hypothetical templexity is investigated cosmo-physically under the name of the ‘closed timelike curve’ [15]. As noted by Seth Lloyd *et al*. (2011) "... closed timelike curves are a generic feature of highly curved, rotating spacetimes ..." [16]. The apparently quite distinct invocation of ‘closure’ within cybernetics, to describe the object of a nonlinear function, is walled-off from this figure less by a definite boundary than by a transient condition of theoretical underdevelopment. The usage in *Looper*, of course, is merely a theatrical sign, selected for *pathos*. Any profound connection is coincidental.

#3.1 Mike Dickison's excellent *Looper* commentary [17] succinctly describes this implicit procedure for unlimited wealth, among other (extreme) missed opportunities.

#3.4 The vulgar error of identifying 'time-travel' with *changing the past* is explicitly dismissed by the Novikov Self-Consistency Principle, which preserves hypothetical templexity while setting the probability of any anterior state modification at zero. See the relevant Wikipedia discussion [18], or, more technically, the critical 1990 paper by Novikov *et al*. 'Cauchy problem in spacetimes with closed timelike curves' [19], (referenced under 'Friedman, John).

#4.0 Referenced by Wikipedia [18], where the compatibility with Novikov consistency is made explicit (see previous note).

#5.0 For a detailed engagement with Shanghai as a 'City of the Future' see Wasserstrom (2010). [20]

#5.1 The positive – and thus non-universal – cosmopolitan modernism of Deco has yet to reach us. Its peculiar temporality is already indicated by an intrinsic retrospection, which is reciprocally to say *anticipation*, such that the consolidation of the term 'Art Deco' did not take place until the 1960s, even though it was from the beginning a reference to the *Paris Exposition Internationale des Arts Decoratifs* of 1925. *Ab initio*, it is a term that encapsulates high modernism within a loop.

#5.2 The "International Style" is most succinctly defined as the abstracted, ideological framing of the *Modern Architecture - International Exhibition* (New York, 1932), articulated by Henry-Russell Hitchcock and Philip Johnson, and later crystallized as a book-length architectural manifesto (The International Style, 1935). [21]

#5.3 For reasons that are to a considerable extent sociologically intelligible, based upon the professionalization of non-technical

academic disciplines within the era of mass tertiary education, postmodernism has been uniquely devoted to its own difficulty (and thus to the implicit special competence of its practitioners). Extreme animosity to ‘vulgar’ summarization was its central practical (if not professed) ethic. Even today, with its prestige greatly attenuated, an aura of cultural deterrence still surrounds it. This will eventually seem simply bizarre. Its intellectual content was almost entirely exhausted by the more-or-less rigorous translation of macro-economic management principles into humanistic disciplines. Pomo was Keynes for literary theorists – displacement and postponement of consequences, ontological dissipation, hyper-politicization on behalf of an installed revolutionary power, and strategic inflationary laxity (in respect to rhetoric, inference, reputation, and even grades).

#6.0 A projected transcendence of generic theory in the direction of raw singularities has manifestly offered opportunities for ascetic intellectual raptures. Cosmo-physical precedents for such a path – most prominently in the study of black holes – suggest that such exquisite cognitive torture, while undoubtedly entertaining, is typically redundant and unproductive. The self-limitation of generic models through immanent encounter with emergent singularities does not seem to require supplementary metaphysical exhortation. Any sufficiently sophisticated, reality-tested science reaches such a threshold automatically. The acknowledgement of efficient urban singularities within a disciplined, generic urbanism can be anticipated as the *normal* outcome of proceedings, assuming only ordinary standards of methodological integrity. As the computerization of the natural sciences has demonstrated *generally*, the ability to run complex simulations tends inevitably to an encounter with real individuals (singularities). Attention to the exceptional, therefore, should not be understood here as an appeal to theoretical heroism.

#6.11 As the problem of templexity is self-consciously localized, it might be expected that this archaic urban stratum – through which the ‘international’ city of Shanghai is conjoined to indigenous ‘national’ tradition – will prove especially conductive to ideo-political

tensions. Preliminary indications of the coming Chinese time-politics (see note #1.2) have been highly suggestive in this respect. For a non-local (and predominantly English-speaking) audience, however, the more immediately significant urban time-circuits are those enmeshed in a recognizable dynamic of capital accumulation, operating in a code that unambiguously processes the fate of the world.

#6.12 See in particular Hanchao Lu (2004).

#6.13 Shanghai has been as thoroughly saturated with Art Deco heritage and influence as any city in the world. Prominent buildings exemplifying the style include the Capitol Building (146 Huqiu Lu, CH Gonda, 1928), the Grand Theater (now Grand Cinema, 216 Nanjing Xi Lu, Hudec, 1928), the Peace Hotel (Bund 19-20, Palmer & Turner, 1929) and the Paramount Ballroom (218 Yuyuan Lu, Yang Ximiao, 1932). An especially remarkable Art Deco cluster can be found at the 'Municipal Square' intersection of Jiangxi Middle Road and Fuzhou Road, dominated by Hamilton House (Palmer & Turner, 1931), the Metropole Hotel (Palmer & Turner,1934) and the Commercial Bank of China (Davies, Brooke and Gran, 1936). Much of this fabulous architectural legacy has been documented in the work of local photographer Deke Erh [22]. Art Deco styling became so deeply infused into the fabric of the city that its patterning and distinctive motifs (such as sunbursts, zig-zags and arcane signs) can be seen on innumerable *lilong* gateways from the 1920-40s. At another extreme, the city's ultramodern Jin Mao Tower in Lujiazui (88 Century Avenue, Adrian Smith, SOM, 1999) synthesizes crystalline forms, pagoda segmentation, and patterns derived from traditional Chinese numerology, under the guidance of unmistakable Art Deco influences. An even more pronounced example of contemporary Art Deco construction and decoration is provided by the new Peninsula Hotel (Bund 32, David Beer, 2009), designed as a conscious tribute to Shanghai's high modernist style.

#6.14 By suspending the introduction of prestige mainstream modernist construction until the age of computer-assisted architectural design, Shanghai has largely escaped the ravages of rectilinear skyscraper minimalism. The boxy puritanism of International Style functionalism has been absorbed into a more fluid aesthetic of ‘clean design’ and (the crucial descriptor) ‘sleekness’ that discreetly tolerates curves, continuous irregularity, and subtle expressions of extreme formal complexity. The designs of global architecture giant KPF (Kohn Pedersen Fox) – massively involved in the re-engineering of the Shanghai skyline – illustrates the new ‘modern’ style at a zenith of excellence [23]. Mainstream modernism is comparable in profound ways to the Mao Zedong images on Chinese paper currency. Everything has changed, but the signs of formal continuity are preserved all the more scrupulously precisely on that account.

#7.0 Since, with at least provisional plausibility, the transcendental or (fundamental) ontological difference between time and temporalization can be securely aligned with the distinction between entropic and negentropic directionality, or the normal (cosmic) and inverse (evolutionary) arrow of time, Gibson’s linkage of the future to uneven distribution is bound to remain resiliently provocative. [24]

#7.1 Positive and negative externalities of urban spectacle, while vast in their consequences, elude the scope of the present discussion.

#7.2 The assumption of anarchy underlying realist international relations theory, according to which order achieved above the level of the nation state can only be an emergent property, derived from systematic interactions between state actors, has considerable application to the situation of world cities. These hubs relate to each other through an abyss, theoretically represented by a subtraction of authority. There is no power capable of protecting their global role, which is settled in the frigid, ultra-thin atmosphere of world metropolitan mountain peaks, at an altitude beyond state

competence or capability. To describe this environment as ‘Darwinian’ or ‘Hobbesian’ is not a positive claim, but a negative one. There is no order to which they can appeal, transcending the fragile one arising from their mutual, ‘unforced’ interactions.

#7.3 China’s striking cultural indifference to the futuristic literary mode is only underscored by the efforts made to identify counter-examples. In a discussion angled only slightly differently, this ethnic discrepancy might easily have been the central focus. A special edition of *Science Fiction Studies* has been dedicated to the Chinese contribution to the genre [25], but the specter of dogmatic normative universality is unmissable throughout the debate.

#7.4 The Hebrew year, dating the age of creation, has been known as the *Anno Mundi* (AM) since the integration of historical time in the European Middle Ages. AM 5775 began (at sunset) on 24 September, 2014. While this historical duration is sufficiently modest to serve as a baseline against which the modernist dilation of history can be gauged, it is important to note that the very principle of historical integration is not archaic, but dates back only to the early medieval period.

#7.5 It presently appears as if the absolute limit of time granularization is set by the Planck Time Unit, defined by the period taken for a photon to cross a Planck Length in vacuum, or ~5.4 x 10^ -44 seconds.

#7.8 Cumulative rhythmic innovation is described neither by a repeating cycle, nor by a linear departure into continuous growth, but by a spiral. It is a figure approximately indicated by the popular maxim: *History does not repeat itself, but it rhymes*. Contrary to common opinion, Mark Twain probably never wrote these words, or any very close to them. The uncertain provenance of the phrase, however, does not detract from its acuity. According to Barry Popik: “… the earliest published source yet located is by Joseph Anthony Wittreich in *Feminist Milton* (1987) where he writes: ‘History may not

repeat itself but it does rhyme, and every gloss by a deconstructionist need not be a loss, pushing us further into an abyss of skepticism and indeterminacy'" [26]. (I confess to deep shock, if this is really the original source.) Positive cybernetics is spiro-dynamic. A web is a spiral. Spiromorphism envelops everything said here, even if its explicit thematization still awaits its occasion.

#8.0 Wells' geometric argument for the conceivability of time-travel begins on the very first page of *The Time Machine* [27].

#8.5 Auto-production, or sustained local entropy reversal, translated without residue into positive cybernetics [28].

#9.0 For the thermodynamic critique of time-travel see, for instance, Musser (2014) [29]

#9.1 A creature of the Bootstrap Paradox, Oedipus mates with a matrilineal ancestor to give rise to himself. The even more thoroughly-popularized Grandfather Paradox tricks him into the killing of a patrilineal ancestor, to make himself impossible. The paternal contributor is not merely supplanted, but dramatically terminated. What the hell happens in Thebes? (That's the question the Sophoclean chorus asks.) Since we already know this is a horror story, we have a provisional answer: *Nothing good*. To step back from the answer into the question is to pose again the Riddle of the Sphinx, of which Wikipedia (very helpfully) remarks: "The Sphinx is said to have guarded the entrance to the Greek city of Thebes, and to have asked a riddle of travellers to allow them passage. The exact riddle asked by the Sphinx was not specified by early tellers of the stories, and was not standardized as the one given below until late in Greek history. It was said in late lore that Hera or Ares sent the Sphinx from her Ethiopian homeland (the Greeks always remembered the foreign origin of the Sphinx) to Thebes in Greece where she asks all passersby the most famous riddle in history: 'Which creature has one voice and yet becomes four-footed and two-footed and three-footed?' She strangled and devoured anyone

unable to answer. […] Oedipus solved the riddle by answering: Man —who crawls on all fours as a baby, then walks on two feet as an adult, and then uses a walking stick in old age. […] By some accounts (but much more rarely), there was a second riddle: ‘There are two sisters: one gives birth to the other and she, in turn, gives birth to the first. Who are the two sisters?’ The answer is ‘day and night’ (both words are feminine in Greek). This riddle is also found in a Gascon version of the myth and could be very ancient. Bested at last, the tale continues, the Sphinx then threw herself from her high rock and died. An alternative version tells that she devoured herself. Thus Oedipus can be recognized as a ‘liminal’ or threshold figure, helping effect the transition between the old religious practices, represented by the death of the Sphinx, and the rise of the new, Olympian gods. […] Sigmund Freud describes ‘the question of where babies come from’ as a riddle of the Sphinx.” [30]

#9.2 *The Anubis Gates* is perhaps peerless in its adherence to rigorous time-travel fiction in accordance with the Lovecraftian law, Novikov Consistency Principle, or Austro-Templex hard money criterion [31].

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